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QUESTION OF ANTARCTICA

State of the environment in Antarctica

Report of the Secretary-General

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I. INTRODUCTION

1. In its resolution 46/41 A of 6 December 1991, the General Assembly requested, inter alia, the Secretary-General to monitor and gather information within existing resources on the state of the environment in Antarctica and to submit an annual report to the Assembly.

2. Accordingly, the Secretary-General, in pursuance of paragraph 2 of resolution 46/41 A, addressed a note verbale on 28 February 1992 to Member States, requesting them to submit not later than 30 May 1992 any pertinent information they were prepared to make available. Letters were also sent to the Antarctic Treaty Consultative Parties, drawing further attention to the requests specified in resolution 46/41 A.

3. In addition, letters were sent to relevant specialized agencies, programmes, organs, organizations and bodies of the United Nations system and to relevant intergovernmental and non-governmental bodies inviting them to submit their comments not later than 30 May 1992.

4. As at 1 November 1992, replies from three Member States, including one (Germany) acting on behalf of the States Parties to the Antarctic Treaty, were received with reference to the requests in resolution 46/41 A in line with the procedure utilized on a similar report submitted to the last session of the General Assembly (see annex). In this connection, helpful data have also been received from the following organizations: United Nations Educational, Scientific and Cultural Organization (UNESCO), Food and Agriculture Organization of the United Nations (FAO), International Hydrographic Organization (IHO), International Civil Aviation Organization (ICAO), International Whaling Commission (IWC), International Maritime Organization (IMO), Intergovernmental Oceanographic Commission (IOC), United Nations Environment Programme (UNEP), World Health Organization (WHO), World Meteorological Organization (WMO), Fridtjof Nansen Institute, National Science Foundation and World Resources Institute. These replies have been taken into account in the preparation of the present report.

5. It should be noted that many aspects of the environmental issues addressed in the report have been dealt with at length in the Secretary-General's reports on the question of Antarctica submitted to the General Assembly at its thirty-ninth session (A/39/583), forty-first session (A/41/722) and forty-sixth session (A/46/590). Those documents may be used as reference points.

II. ANTARCTICA'S ROLE IN THE GLOBAL ENVIRONMENTAL SYSTEM

6. As noted in the Secretary-General's report of 1991 (A/46/590), Antarctica plays an important role in the global environmental system by acting, among other things, as one of Earth's "refrigerators". Clearly, this affects global weather patterns, atmospheric conditions and ocean circulation. The formation

of an Antarctic ice-sheet and the associated cooling process have profoundly affected global climate patterns and the development of marine and terrestrial biota. At the same time, the ice-sheet has proven to be an important repository of detailed records of past global climatic and atmospheric make-up, covering hundreds of millennia. It should also be noted that this ice-sheet contains enough water to raise world-wide sealevels by up to 60 metres, were it all to melt. 1/

7. South polar waters also have a particularly important role in the exchange of carbon dioxide (CO_2) between the ocean and the atmosphere. Reportedly, these processes are affected by sea-ice formations, thermohaline convection and biological productivity. 1/

8. Although the Antarctic Circumpolar Ocean has wide connections with the three major oceans, there is a marked physical delineation between them, with cold northward-flowing Antarctic surface water that meets southward-flowing warmer waters from lower latitudes at the so-called Antarctic Convergence. At deeper levels there are northward-flowing, intermediate and deep water currents and a warm deep current going south between them. This means a relatively marked isolation of the Antarctic Ocean at the surface and bottom levels, which is also marked by a strong endemic component in the marine biota. Another example of the isolation is that only two species of vascular plants have been able to establish themselves firmly on the Antarctic Peninsula, although the climatic conditions on land are contributing factors to this. 2/

9. The most obvious human influence on the Antarctic environment is through direct activities in the area itself, for example, hunting, pollution and debris from research stations and ships. In contrast to the Arctic, there is virtually no river runoff that could transport material into the surrounding ocean in the Antarctic. The only transport is by ice floe and the melting of glaciers and shelf ice. Sea ice, which covers extensive areas, does not contribute to that transport. 3/

10. Human activities have already had a major effect on the balance of the Antarctic marine ecosystem. Moreover, commercial exploitation of mineral resources might have a more profound impact on the ecosystem and lead to irreversible damage. The achievements within the Antarctic Treaty System and the Convention on the Conservation of Marine Living Resources (CCAMLR) are of great importance for the future of the Antarctic marine environment. 3/

11. Scientific studies have suggested that ozone depletion over the Antarctic region threatens life in the region more quickly than in other parts of the world. Recent reports from UNEP 4/ indicate that increased levels of ultraviolet radiation in the Antarctic have been shown to have a detrimental effect on the productivity of flora and fauna. In addition, those studies reveal that certain phytoplankton species have been adversely affected. Thus, there is a probability that other species in the vast Antarctic food chain may have been affected as well. Various ongoing scientific studies, including some conducted from orbiting satellites, are being pursued to examine the

effects of global pollution on the Earth's ozone layers. Those studies also take note of Antarctica's marked remoteness from anthropogenic emissions in the atmosphere and within the oceans, and highlight its enhanced potential for forecasting climate changes at high latitudes. 5/

III. PROTECTION OF THE ANTARCTIC ENVIRONMENT

12. As noted above, Antarctica offers several opportunities for detecting changes in the Earth's atmospheric systems and for assessing the impact of pollutants of global ecosystems. In that connection, a recent document published by the Scientific Committee on Antarctic Research (SCAR), entitled "Environmental monitoring in Antarctica" (May 1992), noted that, owing to the increasingly fragile nature of Antarctic ecosystems, there is a growing need for comprehensive environmental monitoring. SCAR's report further highlighted articles 3.2.d and 3.2.e of the new Protocol on Environmental Protection to the Antarctic Treaty, which calls for regular and effective monitoring of the impact of various activities there. Those articles envisage the assessment, verification and early detection of the predictable activities as well as the unforeseen effects of certain activities carried on within or outside the Antarctic Treaty area, and/or in Antarctic-dependent and associated ecosystems. The same matter was addressed in Antarctic Treaty Consultative Meeting recommendation XV-5. 6/ The recommendation specifies, inter alia, monitoring programmes relevant to activities such as:

(a) Waste disposal;

(b) Contamination by oil or other hazardous or toxic substances;

(c) Construction and operation of stations, field camps and related ship, aircraft and other logistic support facilities;

(d) Conduct of science programmes;

(e) Recreational activities;

(f) Those affecting the purposes of designated protected areas.

13. Recommendations made by the Antarctic Treaty Consultative Meeting also call for a meeting of experts to consider and provide additional information on these matters in pursuance of the following objectives:

(a) To utilize international monitoring as a means of obtaining a regular and verifiable record of activities and data necessary to:

(i) Study the impact of various activities and provide early warning of negative impacts;

(ii) Identify preventive or remedial measures needed to reduce or eliminate adverse impacts;

(b) Other topics to be addressed:

(i) Identification of methodologies and technologies available for monitoring (especially inexpensive and automated systems);

(ii) Identification of steps needed to create national and cooperative data systems that would provide for collection, quality control, archiving, evaluation, exchange and retrieval of environmental data.

14. Documentation received from SCAR in 1992 indicates that environmental monitoring remains a fundamental element of Antarctic research, environmental management and conservation. Furthermore, the systematic measurement of selected variables provides valuable insight as regards the effects of natural phenomena and human activities. The monitoring of such data is also important for the development of scientific models needed to assess various environmental processes. Concrete steps need to be taken to safeguard both Antarctic and global environmental systems from the effects of global warming.

15. SCAR also noted a lack of global environmental databases with respect to the Antarctic, despite the fact that many concerned non-governmental organizations and individuals had access to important and relevant data. Clearly, there is a need to better coordinate and exchange existing information affecting Antarctic studies.

16. It is also significant that while some environmental monitoring has already been undertaken by various operators in the Antarctic, there seems to be a lack of standard protocols. This renders it difficult readily to synthesize data from different research groups. In this connection, SCAR has proposed, inter alia, that countries engaging in monitoring activities in the Antarctic should consider how best to implement the following:

(a) Reaching international agreement on a future data collection and analysis protocol with respect to various scientific endeavours;

(b) Organizing and coordinating any inter-laboratory calibration schemes and providing international standards as required;

(c) Making such data readily available to the scientific community at large;

(d) Providing a summary of any such data, including an evaluation of the environmental consequences to concerned interested parties.

IV. CONCLUDING REMARKS

17. While mankind is only at the dawn of fully understanding the totality of Antarctic ecosystems, it is evident that the interplay among these systems is of prime importance to the global environment. The inaccessibility of Antarctica, the cost of scientific research and other factors amply

demonstrate the need for international cooperation in order to safeguard Antarctica and its dependent ecosystems for future generations. It is encouraging that the last 30 years of scientific research in the Antarctic have produced some very important data on the current state of the environment. In this regard, the importance of the discovery of the ozone hold over the Antarctic and the potential ill effects of "greenhouse gasses" cannot be overemphasized.

18. It is also noteworthy that the significance of Antarctica in a global context was recognized at the recently held United Nations Conference on Environment and Development - the Earth Summit - held at Rio de Janeiro in June 1992. In this respect, Agenda 21, adopted at the Conference, states in part:

> "In recognition of the value of Antarctica as an area for the conduct of scientific research, in particular research essential to understanding the global environment, States carrying out such research activities in Antarctica should, as provided for in article III of the Antarctic Treaty, continue to:
>
> (a) Ensure that data and information resulting from such research should be freely available to the international community;
>
> (b) Enhance access of the international scientific community and specialized agencies of the United Nations to such data and information, including the encouragement of periodic seminars and symposia."

Notes

1/ Report to the United Nations from the Scientific Committee on Antarctic Research on the state of the environment in Antarctica, p. 4.

2/ UNEP Regional Seas Reports and Studies No. 129.

3/ Ibid., p. 1.

4/ UNEP letter, 22 June 1992.

5/ Ibid., p. 1

6/ Final report of Sixteenth Antarctic Treaty Consultative Meeting, 7-18 October 1991.

ANNEX

Replies from Governments

ANTIGUA AND BARBUDA

[Original: English]

[25 March 1992]

With respect to paragraph 2 of General Assembly resolution 46/41 A, the lack of a physical presence on Antarctica prevents the Government of Antigua and Barbuda from monitoring and gathering information on the state of the environment in Antarctica; with respect to paragraph 8, the Government of Antigua and Barbuda, through its active participation in the ongoing debate on Antarctica, in its annual statement to the General Assembly of the United Nations and through its local media, continues to "promote public awareness of the importance of Antarctica to the ecosystem".

GERMANY*

[Original: English]

[29 May 1992]

1. The General Assembly resolution refers to the significant impact that Antarctica exerts on the global environment and ecosystems. The Parties to the Antarctic Treaty are aware of the need for concerted international action to protect the Antarctic environment from external environmental disturbances that could accelerate serious global environmental change. As the countries active in the region, they have developed measures, and will continue to develop measures, to protect the fragile Antarctic environment from the impact of the limited human activity within the region. Evidence of this concern is shown by the adoption and signature of the Environmental Protocol in October 1991, which is recognized in the General Assembly resolution, and the further work since then to extend the scope of the Protocol. The Protocol, which is an integral part of the Antarctic Treaty, designates Antarctica as a natural reserve devoted to peace and science in recognition of the continent's global importance. It establishes a comprehensive, legally binding regime to ensure that activities undertaken by Parties in Antarctica are consistent with the protection of the Antarctic environment and its dependent and associated ecosystems.

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* On behalf of the States Parties to the Antarctic Treaty.

2. Given the indispensable contribution of Antarctic scientific research to the global effort to predict and understand climate change, the Parties to the Antarctic Treaty will also continue to make freely available the results of their Antarctic research bearing upon the global environment as well as on all other subjects. Any State can participate in this work by acceding to the Antarctic Treaty.

3. It may be recalled also that during the fourth meeting of the Preparatory Committee of the United Nations Conference on Environment and Development in March 1992 an agreement was reached on the wording concerning Antarctica in the oceans paper of Agenda 21, section E, addressing the critical uncertainties for the management of the marine environment and climate change. This will be presented to the Rio Conference for its approval. The text reads as follows:

> "In recognition of the value of Antarctica as an area for the conduct of scientific research, in particular research essential to understanding the global environment, States carrying out such research activities in Antarctica should, as provided for in article III of the Antarctic Treaty, continue to:
>
> "(a) Ensure that data and information resulting from such research is freely available to the international community;
>
> "(b) Enhance access of the international scientific community and specialized agencies of the United Nations to such data and information, including the encouragement of periodic seminars and symposia."

4. In the context of the distribution of information the Permanent Representative of Germany has the honour to refer to the final report of the Sixteenth Antarctica Treaty Consultative Meeting, held at Bonn from 7 to 18 October 1991. Immediately after publication, two English-language copies of that report were sent to the Secretary-General of the United Nations, together with verbal note No. 231 of 8 May 1992.

5. The Permanent Representative of Germany has the honour to refer to his statement made on behalf of all States Parties to the Antarctic Treaty in the plenary session at the forty-sixth session of the United Nations General Assembly on 18 November 1991. The statement, inter alia, expressed the opinion of the Treaty Parties that consensus is the only constructive basis for considering Antarctic issues, and that the General Assembly in considering the question of Antarctica should therefore return to consensus. That remains the conviction of the Parties to the Antarctic Treaty.

PANAMA

[Original: Spanish]

[29 July 1992]

1. The Republic of Panama, being a State respectful of the international treaties on demilitarization and on the preservation of species and the protection of the environment, declares its support for any study concerning the question of Antarctica. Panama supports the idea of establishing Antarctica as a natural preserve or world park to ensure the protection and preservation of its environment and dependent and associated ecosystems for the benefit of all mankind.

2. Also, it suggests that any initiative relating to the drafting of an international convention should be conducted with the full participation of the international community. Furthermore, it recognizes the need to establish internationally coordinated scientific research stations in Antarctica with a view to reducing logistical support installations to a minimum.

3. The Government of Panama maintains its position in favour of keeping Antarctica as a neutral zone characterized by the broadest international cooperation.